ATTACHMENT 5

5.0 WORK PLAN

5.1. Project 1 – Development of a Ground Water Management Plan (GWMP)

Ground water management in the storage units currently consists of ongoing efforts by the City of Banning as part of its normal operation patterns of recording and reporting since 1959. Therefore, this portion of the proposed project is to prepare a SB 1938-compliant GWMP. Specific tasks of the work plan will be described in the following sections.

As part of this project, the City will, in conjunction with interested parties and Stakeholders, prepare and adopt a ground water management plan (GWMP) that will describe the common understanding of the ground water issues and management opportunities in the storage units and move forward in identifying specific areas feasible for ground water recharge projects. During preparation of the 2003 and 2010 Maximum Perennial Yield Reports, initial baseline data up to 2009 and a conceptual model of the ground water storage units have been developed. Therefore, the primary focus of work for the GWMP will be to work with local Stakeholders to discuss existing and potential long-term ground water management issues and develop the GWMP document. In accordance with California Water Code 10750 et seq., the following tasks will be carried out as part of the GWMP preparation and adoption effort:

- Conduct public outreach.
- Identify ground water issues and develop Basin Management Objectives (BMOs).
- Conduct a hearing on whether to adopt a Ground Water Management Plan.
- Adopt a resolution of intention to adopt a Ground Water Management Plan.
- Publish the resolution of intention.
- Prepare the Ground Water Management Plan and conduct a technical review (QA/QC) of the document.
- Hold a public hearing after the GWMP is prepared and consider any protests.
- If no majority protest, adopt GWMP within 35 days after public hearing.
- Adopt rules and regulations for implementation and enforcement of the GWMP.
- Project administration and management.

The GWMP plan for the Banning Storage Units shall address the following technical considerations:

- Identification and management of wellhead protection areas and recharge areas.
- Regulation of the migration of contaminated ground water.
- The administration of a well abandonment and well destruction program.
- Mitigation of conditions of overdraft.
- Replenishment of ground water extracted by water producers.
- Monitoring of ground water levels and storage.
- Facilitating conjunctive use operations.
- Identification of well construction policies.
- The construction and operation by the local agency of ground water contamination cleanup, recharge, storage, conservation, water recycling and extraction projects.
- The development of relationships with state and federal regulatory agencies.
- The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of ground water contamination.

To accomplish the activities bulleted above, the following tasks will be carried out.

5.1.1. Task 1 –Administrative Requirements of Ground Water Management Plan

The purpose of this task is to provide support to the project participants to satisfy the administrative requirements for completing an SB 1938-compliant Plan. Some of the actions include:

- Establishing a public participation/public involvement process.
- Assisting the project participants to comply with the public involvement requirement in SB 1938.
- Assisting the project participants with other administrative procedures.

As shown on the project schedule, the administrative requirements occur primarily at the beginning and end of the preparation of the GWMP that will be led by the City of Banning.

5.1.2. Task 2 – Public Outreach and Stakeholder Involvement

This task includes activities associated with the public outreach and Stakeholder involvement process, such as communication with Stakeholders and other interested parties. This will include six scheduled meetings with the Banning Storage Unit Ground Water Advisory Council (GWAC) to report

on project progress, review of project deliverables, and receipt of comments on the plan development and interim deliverables. Additional meetings and briefings are listed below:

- City of Banning Council briefings.
- Newsletters will be circulated electronically in advance of the meetings as part of the public outreach and encourage Stakeholder involvement.

This task will be led by the City with support by the consulting team.

5.1.3. Task 3 – Identify Ground Water Issues and Develop Basin Management Objectives

The purpose of this task is to identify the ground water management issues within the project location and develop BMOs that identify the ground water management activities that are linked to each BMO. The BMOs will include objectives for water levels and water quality. Land subsidence will not be considered for now due to the nature of the ground water aquifer as well as the fact that ground water levels have generally been maintained in the Banning Storage Units without long-term declines. The activities associated with the development of BMOs will address the ground water management components and may be organized into the following groups:

- Identification and management of wellhead protection areas and recharge areas.
- Regulation of the migration of contaminated ground water.
- The administration of a well abandonment and well destruction program.
- Mitigation of conditions of overdraft.
- Replenishment of ground water extracted by water producers.
- Monitoring of ground water levels and storage.
- Facilitating conjunctive use operations.
- Identification of well construction policies.
- The construction and operation by the local agency of ground water contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.
- The development of relationships with state and federal regulatory agencies.
- The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of ground water contamination.

It is expected that the BMOs will be developed based upon the boundaries of the ground water storage unit delineations (Figure 1 of Attachment 4), which include Banning Storage Unit, Banning Bench Storage Unit, and Banning Canyon Storage Unit and each of their respective watershed areas.

5.1.4. Task 4 – Prepare Ground Water Management Plan

A draft and final version of the GWMP will be completed as part of this task. The draft document will be distributed to the project participants, Stakeholders, and DWR for review and comment. The final document will be prepared, based on information collected on the draft document. The final GWMP will then be provided to the project participants. This task will include the preparation of an implementation plan to outline the GWMP that will be used to direct ground water management in the storage units and support other planning efforts such as the City of Banning 2010 UWMP. The 2010 UWMP water supply and demand analysis is relevant to the Banning Storage Units and will be used for the GWMP. The GWAC will develop the implementation plan, which will address:

- The establishment of a ground water monitoring program, including the analysis and reporting of annual ground water conditions.
- Continuation of monitoring ground water protection efforts.
- Ongoing planning for ground water recharge and conjunctive use opportunities.
- Planning to periodically update the GWMP as additional information is developed.
- Identifying funding for continued ground water management activities in the storage units.

This task will be led by the consulting team. Independent technical review of this task will be completed by the consulting team and the City as described in Task 5. In addition, the draft GWMP will be presented to the Banning Storage Units GWAC and interested local advisory committees in order to get review and comment by the Stakeholders and interested parties.

5.1.5. Task 5 – Technical Review – QA/QC

This task includes an independent technical review by the members of the consulting team and city staff experienced in ground water management, but not directly involved in the development of this GWMP. This internal QA/QC will provide additional review and expertise to the project to ensure it meets the expectations of the local project participants and Stakeholders, provides a vision and framework for the implementation of ground water management in the storage units, and meets the requirements for SB 1938. The technical review is expected to take place at four specific areas:

- Identification of ground water issues and development of BMOs.
- Preparation of the Ground Water Monitoring Program inclusive of the proposed sampling and analysis plan.
- Review of the draft ground water management plan including the implementation plan.

This task will be led by the consulting team. It will be coordinated with the review and comment of the interim deliverables by the Stakeholders and interested parties as shown on the project schedule. The project budget for this task, as shown on Table 1 and Table 2, presents a Principal Hydrologist and Senior Geohydrologist for the Consultant and a Senior Engineer/Project Engineer and a Senior Technical Review for the City.

5.1.6. Task 6 – Project Management

This task includes general project management and coordination during the development of the GWMP.

This task includes:

- The consultant's project management activities, including preparing monthly invoices and progress reports. This was budgeted to take approximately one hour per month (for the duration of the project) for both the project manager and project administrator.
- Overall project management by the City's project manager, including preparing invoices and progress reports for DWR. This was budgeted to take approximately one hour per month for the City's project manager and City's project administrator. It was also budgeted to take approximately one hour per month for the consultant project manager and half hour per month for the consultant project administrator. An additional four hours is needed for each quarterly report to DWR. This effort will be provided as a cost share.

Project management activities will continue throughout the duration of the project.

5.2. Project 2 – Development of a Ground Water Recharge Feasibility Study (GWRFS)

The Ground Water Recharge and Feasibility Study (GWRFS) will consist of development of a comprehensive geologic and geohydrologic database which in turn will be used for construction of a watershed model and to refine the existing USGS ground water flow and solute transport model for simulating potential conjunctive use projects and selected ground water management projects within the Banning Ground Water Storage Units.

5.2.1. Task 1 – Administrative Requirements of Ground Water Recharge Feasibility Study

The purpose of this task is to provide support, reporting, and coordination for disseminating information, soliciting and reviewing responses, and communicating with the consultant, DWR, and

Banning Storage Unit GWAC throughout the project. Briefings will be conducted in conjunction with the GWMP briefings. However, if a special meeting is required for decision making, the project manager will be responsible to coordinate and facilitate the meeting.

5.2.2. Task 2 - Supporting Document Review - Background Data Collection, Review, and Database Update

Review of all relevant background reports, data, well logs, geophysical borehole logs (i.e. "E logs"), geologic maps, hydrologic maps, geophysical surveys conducted in the area will be conducted as well as an update to the current geohydrologic database.

5.2.3. Task 3 - Analyze Potential Storm Flow Capture, Recycled Water, and Imported Water Volumes

Analysis of potential storm water flow, recycled water, and imported water volumes to the project area.

5.2.4. Task 4 - Construct "Basemap" of Project Area

Construct a "working" basemap showing area of interest, known wells, faults and other relevant features.

5.2.5. Task 5 - Field Reconnaissance

Conduct field reconnaissance (and mapping) using aerial photos as required. During this phase, a field inventory will be made of all existing wells in the area and their locations accurately plotted using GPS. Also at this time, updated (or new) information will be obtained on each well and entered into an electronic database. If possible, during this phase, depth to water measurements will be added on all wells inventoried in the field.

5.2.6. Task 6 - Assess Field Parameters Based on Pumping Tests

Analyze pumping test data on the wells to determine formation parameters (transmissivity, storativity and leakance). Following assessment of the saturated thickness at the well, an estimate of hydraulic conductivity and specific storativity will be conducted.

5.2.7. Task 7 - Construct GIS Database of Well Data

Incorporate data into electronic database (GIS format). The data will include background information on wells, historical records of production, water levels and water quality where available. Data collected during field reconnaissance will also be incorporated and compiled into a master geohydrologic database.

5.2.8. Task 8 - Construct "Layered" Geohydrologic Basemap

Construct "layered" geohydrologic basemap using data obtained from background research and field inventory. The basemap would show geologic formations, faults, aquifer depth, thickness and areal extent, ground water elevations and flow directions. The map would also include all known wells and springs within the study area. Isopachs of aquifer thickness would be constructed from available geologic data, well logs, geophysical borehole logs and geophysical information (seismic and gravity surveys).

5.2.9. Task 9 - Identify Data Gaps

Based on the available data and geohydrologic basemap, "data gaps" or areas where additional data needs to be obtained would be identified. If wells exist in the area of data gaps, the feasibility for additional pumping tests and use of data obtained from these supplemental tests will be determined.

5.2.10. Task 10 - Refine USGS Regional Ground Water Model

Refine USGS Regional Ground Water Model of the Beaumont and Banning Storage Units. Using up to date geologic and geohydrologic information collected for this study, the USGS ground water model will be refined and updated. The current cell size is 1,000 ft x 1,000 ft. The model cell sized will be refined to 200 ft x 200 ft cells or less. The flow and solute transport model will be re-calibrated using updated information collected to prepare the comprehensive geologic and geohydrologic database. The model layers will be refined as appropriate to reflect all current available data.

5.2.11. Task 11 - Develop a Watershed Model

Develop a Watershed Model for the surface watersheds that contribute to the Banning Storage Units. Modern watershed modeling tools such as the Hydrologic Simulation Program – Fortran (HSPF) can comprehensively simulate all the components of the hydrologic system on a daily basis in both rural and urban environments. Through model simulations, recharge for each storage unit can be quantified. In addition the changes in ground water recharge due to increasing urbanization can also be quantified. We propose to use the HSPF model to quantify recharge terms both inflow and outflow parameters for the storage units. In addition, potential stormwater capture estimates for major and minor tributary creeks will be made in developing the ground water recharge parameters and will be compared to potential storm flow volume data developed for Task 3. The calibrated surface water model terms will inform the refined ground water model and allow evaluation of the impact of both natural and artificial recharge on the Banning Storage Units.

5.2.12. Task 12 – Develop a Hydrologic Water Balance

The maximum perennial yield for each storage unit will be calculated using the selected hydrologic base period established from a cumulative departure from mean precipitation chart prepared from representative precipitation station(s) within or near the study area. The maximum perennial yield calculated using the water balance method and HSPF watershed model will be compared to previous estimates prepared using methods employing the relationship between historical pumping and ground water level changes.

5.2.13. Task 13 - Run Selected Scenarios for the Surface and Ground Water Model

Run the combined surface water and ground water model for various pumping and artificial recharge scenarios. The model can be updated and "refined" as additional data becomes available (e.g. new pumping test results or lithologic data from well logs) or with changing land use as development continues.

5.2.14. Task 14 - Preparation of Ground Water Recharge Feasibility Study

Task 14 will consist of preparation of the Ground Water Recharge Feasibility Study presenting the results of the recharge feasibility study. The report will provide a summary of data gathering, construction and calibration of the watershed model, refinement of the USGS ground water model, and recharge feasibility modeling scenarios. Based on anticipated water level and water quality impacts from the model scenarios, the report will present recommendations for potential areas for recharge projects, and recommended scope and estimated cost of work for site specific field investigations, including technical specifications for drilling and test well construction and pilot basin testing protocols.

5.3. Evaluating Progress and Performance (Project 1 and Project 2)

The City will continually monitor the project performance to ensure the successful completion of both the individual activities and the overall project. As previously mentioned in this application, there is an extensive quality assurance component to the project. The City's project manager will be responsible for implementing the quality assurance measures and communicating the overall project progress and performance to the Stakeholders and DWR.

Communication with DWR

The overall project performance will be conveyed to DWR in quarterly progress reports. The City will prepare six quarterly progress reports and one final progress report (completed at the end of the

project) during the 18-month project schedule. Preliminary dates for submittal of the progress reports are shown on the project schedule in Attachment 7.

Communication with Stakeholders

The project performance will be conveyed to project Stakeholders at six project meetings with the Banning Storage Units GWAC and briefings to other advisory groups. Preliminary dates for the project meetings are shown on the project schedule.

Completion of Project Tasks

The work plans presented above will be completed with participation from the GWAC. The performance of the tasks will be compared to the project goals and objectives established in the work plan.

Some of the performance measures for Project 1 individual activities are outlined below:

- Completing the administrative requirements to prepare and adopt a ground water management plan.
- Establishing a regional Banning Storage Units GWAC, with the necessary Stakeholder and public involvement.
- Identifying the ground water issues that support the development of Basin Management Objectives (BMOs) for the Basin.
- Preparation of a ground water monitoring plan.
- Completing and adopting the Plan, which will address all the ground water management components identified in the California Water Code associated with an AB 3030 and SB 1938 ground water management plan. This includes the preparation of the implementation plan.
- Completing the technical review and QA/QC by the consulting team.
- Implementing a project management program to maintain effective and timely progress including coordination among project participants, consulting team, and with DWR.

Some of the performance measures for Project 2 individual activities are outlined below:

- Development of a comprehensive geologic and geohydrologic database.
- Development of a refined and re-calibrated ground water flow and solute transport model.
- Development of Watershed Model for the Banning Storage Unit Watershed area.
- Preparation of the Draft and Final GWRFS Report.

5.4. Project Deliverables (Project 1 and Project 2)

The project deliverables identified in the work plan are listed below.

- Participation in six project meetings and up to eight briefings.
- Interim technical memorandum documenting the ground water issues and BMOs.
- Technical Memorandum presenting the ground water monitoring program and water level and water quality data management system.
- Draft and Final GWMP.
- Draft and Final GWRFS Report.
- Quarterly progress reports to DWR.

5.5. Environmental Compliance and Permits (Project 1 and Project 2)

Since the proposed project is a paper study that does not include any physical changes to the environment, it is not subject to the California Environmental Quality Act (CEQA). The project does not qualify as a "project" under Section 15378 of the CEQA Guidelines.